

State Department of Geology and Mineral Industries

702 Woodlark Building
Portland, Oregon

OIL AND GAS STRUCTURE-----HAY CREEK ANTICLINE

JEFFERSON COUNTY

Operator or leases:

Hay Creek Oil and Gas Development Company
403 Second and Cherry Building
Seattle 4, Washington

President and General Manager: Mr. J. E. Morris, Seattle
Vice President: Mr. Hal Armstrong
Secretary-Treasurer: Mr. Robert G. Comstock, Seattle

RECEIVED
APR 19 1947

STATE DEPT OF GEOLOGY
& MINERAL INDS.

Owner:

John Doe et al (meaning ranchers and land owners too numerous to mention)

Location of Holding:

On section of the Hay Creek Anticline as mapped by Hodge, (Oregon State Monographs, Studies in Geology, No. 3, 1941). This section is within the bounds of Townships 11, 12, 13; Ranges 13, 14, 15, and 16.

Area:

The company reportedly has leases on 23,000 acres of land, 400 acres of this is situated in Crook County with the remainder being in Jefferson County. Although large single blocks of land are held, the above acreage is not all in one unbroken block. It is understood, however, that promises of leases covering additional acreage within the area mentioned have been made and the company intends to continue its efforts in connection with increasing its holdings.

History:

The oil and gas potentialities of this and other similar "structures" in the general vicinity have long been a subject of interest, to some people. Although several different groups are known to have obtained leases on various of these structures during the last two decades, no known drilling of any consequence has

ever been done. The nearest drilled well of any importance is perhaps the Clarno ^{test} which is situated near Clarno in T 7 S; R 19 E; S 34. This is about 35 miles to the northeast from the center of these holdings.

The present company was incorporated in the State of Washington as of June, 1946. The company qualified to do business in Oregon in February 1947, and filed application with the Corporation Commission for permit to sell stock within the state during the same month. ~~The permit to sell stock in Oregon has not been granted as yet.~~

Development:

The company has had several reconnaissance examinations made of these holdings and some ^{Topographic} contour and geologic mapping on portions thereof, but no other development work has been done. The examiners include Mr. John S. Crandall and Mr. L. Lore Wartes of Spokane and Mr. Albert Hale of Tacoma. The contour and geologic map was made by Hale during a 12 day examination in June 1945.

Geology:

Following is a summary of geologic observations covering this company's holdings and the area surrounding thereto insofar as geologic data bearing on the existence of oil and gas is concerned. All discussion of any significance of this geology with regards to the possible existence of commercial quantities of oil and gas appears under the heading Economics.

Oregon State Monograph No. 3 published by the Oregon State College in 1942 (Geology of North Central Oregon, by Hodge) is the most comprehensive and up-to-date presentation of general geologic mapping for this section of Oregon yet published.

Amongst other things Hodge mapped and described a series of folds (page 47-49) as follows:

"Many folds are of minor character, so small in fact, that previous descriptions of this area have characterized it as a "level, undeformed, basalt plateau." A number of very important folds occur, which beginning in the northwestern corner of the

region, are-----/ The next most important fold is the Hay Creek anticline, which begins south of Cline Butte and extends northeastward across Haystack Butte, the Mesozoic area-----and far to the northeast."

Many faults are mapped and described. Of note here is the reference (page 49),---
"There are a number of minor faults in the vicinity of Grizzly and Gray Buttes-----."

The company's holdings cover this Hay Creek anticline in the area where it ^{as mapped,} extends across "the Mesozoic" in an unbroken (as mapped) manner, and also in the Grizzly area where the minor faults occur.

The scale of the Hodge map is of necessity small and lacking in detail accordingly. The large-scale, detail map made for the company by Albert Hale of the eastern, or "Mesozoic", portion of their holdings conforms fundamentally with the Hodge mapping but at the same time does exhibit local differences in the trend of the structural high, and also in the areal extent and bounds of the "Mesozoic" formation. Hales' work in the western, or Grizzly, portion of the holdings consists of reconnaissance notes only, but as entered on a base map by various of the company officials, these show appreciable differences from the Hodge map in both fault and fold trends.

(A copy of these company maps was promised to the Department, but have not been received as yet and do not accompany this report accordingly.)

The Mesozoic formation as described by Hodge (page 6) is as follows:

"Mesozoic formations occur at two places within the area; one is near Mitchell and the other lies three townships east of Culver and is represented by a hill of folded and crushed rock, the top of which has been exposed. Its surface has been searched for fossils without success, and its exact age is unknown. The rocks, their degree of folding and mineralization, resemble known nearby Triassic formations."

In the legend on the map accompanying the text this formation is described as: "Pre-Tertiary; Triassic? Jurassic? or Cretaceous formations. Conglomerates, sandstones and shales, Much deformed, faulted, veined and intruded."

Mesozoic formations, including marine Cretaceous, from elsewhere in central Oregon have been described by several writers (refer Bibliography of the Geology

and Mineral Resources of Oregon, by Treasher and Hodge, Issued by the Oregon State Planning Board, 1936). Although Hodge is not specific as to the age of his Pre-Tertiary mapped at Mitchell and on the Hay Creek anticline, Merriam and Gilmore, in describing a reptile fossil from the NW¹ Sec 23, T 11 S, R 21 E, which is in the area of the Hodge "Pre-Tertiary" at Mitchell, refer to the formation as marine Cretaceous (An Ichthyosaurian Reptile from Marine Cretaceous in Oregon, Carnegie Institute of Washington Publication No. 393, 1928). Although Hodge states that a search for fossils was without success, a paper ^{by E. L. Packard} entitled Cretacic Rocks of Central Oregon (Pan American Geologist, Vol. 49, No. 4, 1928) mentions fossils and seemingly refers to these same beds. The writer does not possess this paper, but the complete abstract given in the Bibliography of the Geology and Mineral Resources of Oregon is as follows:

1332 Cretacic Rocks of Central Oregon (abst. Pan-American Geologist, v. 49, no. 4, p. 305, 1928. abst. Geological Society America, Bull., v. 40, no. 1 p. 166, Mar. 30, 1929)

OrGa OrP

Areas of Upper Cretaceous rocks occur at several localities along Ochoco Range of Central Ore. Eastern-most known locality lies high up on range, few mi. SE. of Dayville & westernmost locality has recently been discovered by E. T. Hodge within drainage basin of Deschutes R. & largest area lies within Mitchell Quadrangle and was mapped by J. P. Buwalda. Other fossiliferous areas along range are of small extent, but have yielded characteristic faunas not yet completely studied. Mitchell anticline has yielded large & varied ammonite fauna, one horizon being traceable for nearly length of structure. Although final correlations have not yet been made, part of lower shales of Mitchell anticline will probably prove to be Horsetown age, while coarser deposits high in sec. are undoubtedly of Chico age. Discussion by F. M. Anderson, Crickmay, & author. (ROT)

The foregoing comments on formational age are rather contradictory in many respects. Of significance here is the fact that the Cretaceous, including marine

Cretaceous, has been described in neighboring areas of central Oregon, and that the formations at Mitchell and Hay Creek are accepted as being Mesozoic, and possibly if not actually, Cretaceous too.

The nature of the overlying formations is as pertinent to any consideration of the oil and gas potentialities on these holdings as is the existence of the Cretaceous or any other possible petroliferous horizon. The Clarno formation of Eocene age overlies the Mesozoic here and the Clarno formation is composed largely of volcanic materials, including both acid and basic lavas and pyroclastics. Sedimentary components (sandstones and conglomerates) exist, but constitute only a minor portion of the formation. In discussing the lava, Hodge (page 8) states that, "Apparently there were many local vents because none of the flows are of wide extent. Here and there dikes occur---in these---fissures through which the lava was extruded." Hodge further states (page 8) that, "Both the Mesozoic and Clarno formations are cut by igneous intrusions and veins."

Not only was volcanic activity in the form of lava flows predominant in the Clarno formation immediately overlying the Mesozoic, but it has been common during succeeding geologic time up to the present in this general area of central Oregon. The Columbia River basalts of Miocene age and the Ochoco and Dalles lavas of Pliocene age are examples. All of these formations occur in close proximity to the Mesozoic outcrops in the Mitchell and Hay Creek areas.

Another aspect of volcanic activity worthy of note is that of past hot spring activity as manifest today by cinnabar deposits. In this respect the Ochoco district is one of the important cinnabar districts in the state of Oregon. (refer DOGAMI map of Cinnabar Deposits in the State of Oregon, Francis Frederick, 1945) As in the case of the lava flows of post-Clarno age, these cinnabar deposits do not necessarily occur on the company's holdings, but they do involve the same formations in the immediate vicinity and should be reckoned with accordingly.

Economics:

Certain prerequisites exist in connection with the natural occurrence of oil

and gas. There must be source beds containing the substances from which oil and gas originate. There must be porous reservoir beds to contain any oil and gas originating from the source beds. Above all special conditions with respect to the attitude, or "structure" of the reservoir beds favorable to entrapping substantial quantities of oil and gas must exist. These "structures" may be of many kinds, with the very occurrence of oil therein being often variable and governed by sometimes unpredictable conditions of permeability and water content, etc. within the reservoir beds. This latter factor has often delayed the discovery of commercially important pools when the initial prospect wells situated on the apparently favorable "structure" proved dry. This situation constitutes one of the major speculative factors in prospecting possible oil "structures", especially so in the case of new fields where no backlog of subsurface data exists. Commercially important oil pools are commonly associated with anticlinal structures, however, to the extent that the apex of an anticline that possesses the necessary closure, is the most logical place to locate an initial prospect hole in new territory, assuming of course that other geologic data modifying that conclusion is lacking.

Analyzing the company's holdings in terms of the foregoing, it is evident that the bulk of their holdings cover portions of the Hay Creek anticline. As regards details pertaining to closure thereon, many weeks of painstaking search for recognizable key horizons, together with the tracing and mapping thereof, would necessarily have to be spent before any conclusion would be warranted. Manifestly, the nature of Departmental examinations does not permit ~~such~~ such detailed work for any one individual or company and in competition with professional geologists. Although the Hale map was a step in this direction, it was not in itself clear and conclusive with regards to closure and neither the text of his report, nor the reports of other examiners retained by the company, has been made available to the writer for study.

The significance of the Cretaceous formation in terms of source and reservoir beds can best be summarized by quoting a statement made by Buwalda in his report on the Oil and Gas Possibilities of Eastern Oregon (Oregon Bureau of Mines and

Geology, Vol. 3, No. 2, 1921]. As a sidelight, it is interesting to note that this statement (which follows) was made several years prior to the discovery of the Mesozoic in the vicinity of these holdings as per the references already given in the discussion of Geology.

"It is probable that the marine Cretaceous beds in the Blue Mountains extend westward beneath the lavas of the Cascade Range and intermediate country to connect with the Cretaceous formations of the Coast Ranges but it is not known through what region the connection occurs. It cannot be stated that it is not through the Prineville or Madras sections, but even if it were assumed to be present here, it is not known whether the Cretaceous rocks are oil-bearing in this region."

That portion of Buwalda's statements to the effect that it is not known whether the Cretaceous rocks (the marine Cretaceous exposed elsewhere in central Oregon) are oil bearing is still appropriate. To the best of the writer's knowledge nothing has since been published about confirmed data indicating the presence of possible source beds. One unpublished Departmental report entitled Suplee Oil (by Jean Bowman, 1942) describes a test on samples from the Upper Cretaceous there, which tests indicated the presence of oil. Reports persist, and are mentioned in the report by Donald Mackay (Geological Report on part of the Clarno Basin, Wheeler and Wasco Counties, Oregon, DOGAMI Bulletin No. 5, 1938) that oil was encountered in the Clarno well. Mackay further stated that the Clarno Oil Company was planning to ^Kmade tests to confirm these reports. This has supposedly been done, but the writer is not in the possession of any such test records. Although the officials of the Hay Creek Oil and Gas Company stated they had access to this and other information pertaining to a foraminiferal study of the Clarno well, and promised to furnish this Department with photostatic copies thereof, this data has as yet not been received. No positive statement regarding the indications of oil in the Clarno well can be offered here accordingly. The Hay Creek Oil and Gas Company does have affidavits from three people concerning a discovery of oil in a shallow well drilled for water on the ranch of Mr. R. A. Griffin in T 13 S, R 13 E, Sec 27. These affidavits, by Mr. Griffin,

Mrs. Griffin, and by Mr. Clyde Poulten, the driller, read to the effect that, " a heavy bluish black viscous substance"----"resembling axle grease"---was encountered at a depth of about 300 feet. The affidavits further state that by tasting, smelling and burning, this substance was concluded to be petroleum, No analytical tests were made of this substance, and although the well (now filled) was visited by the writer, and Mrs. Griffin and Mr. Poulten were interviewed, nothing conclusive was learned about the reported occurrence beyond the statements made in the affidavits.

From the foregoing discussion of reported oil showings, it is evident that little data of a positive nature has been established since Buwalda made his survey. Lack of such positive information is not favorable, yet at the same time the lack of such information does not constitute grounds in itself for condemning the region. In this respect it must be remembered that so much of central Oregon is so thoroughly blanketed by lava flows that but few and small areas of the underlying formations are exposed for geologic study. Thus, the possible presence of source and reservoir beds is one of the speculative factors which must be accepted as warranted to a large extent. Were the Cretaceous or other likely petroleum-bearing formations abundantly exposed in central Oregon, and found by geologic study to be lacking of favorable reservoir horizons or possible source beds, the conclusion would be reversed. But the fact remains that they are not abundantly exposed and the question concerning the overall presence or absence of possible source and reservoir beds remains speculative.

The officials of the Hay Creek Gas and Oil Company have expressed their intentions of re-drilling the Griffin well by way of obtaining samples for analysis. To confirm such a showing would be highly desirable as such a confirmed showing would serve to supply a modicum of tangible evidence, otherwise lacking, on the subject of the possibility of the occurrence of petroliferous horizons in the underlying formations. But such a confirmation---even coupled with the Suplee evidence reported by Bowman, and the Clarno well showings, if verified, and taking into consideration the otherwise potentially favorable presence of an anticlinal structure----would not

constitute evidence that commercially valuable pools occur here. At best, it would serve only to indicate that petroliferous source beds of an entirely unknown extent were originally associated with the Cretaceous or other underlying formations. This brings up what is perhaps the most important speculative aspect of the entire subject; namely what effect the widespread vulcanism has had on any occurrences of oil and gas that might have been formed and entrapped^R.

Opinions in this respect vary. Buwalda (page 28) makes the statement that "the lava flows overlying them (the possible Cretaceous beds in the Prineville-Madras area) are very thick and are jointed rocks unadapted to storing petroleum."

Quite apart from the nature of the overlying rocks, and assuming the percentage of sediments therein to be adequate to form a protective capping, the effect of ~~vulcanism~~ on the reservoir beds themselves is a subject worthy of profound consideration.

Not only the flowage of molten magma through fissures would have an adverse effect on entrapped oil or gas if the containing structure was traversed by the fissure. In regions where large volumes of lava is extruded, widespread subsidence of the region at large occurs. Thus even though feeder dikes may be absent in a given local area, the compensation fractures due to subsidence associated with the lava outpourings in the region at large, may be present. Thus may the older formations be subjected to the influence of hot spring waters flowing upward along these fractures from the underlying magma reservoir. In addition, such fractures would also serve as possible avenues of escape for entrapped accumulations of oil or gas.

That the Hay Creek Mesozoic has been effected by these factors is shown by the Hodge description of his Mesozoic as being "Much deformed, faulted, veined and intruded," as has already been mentioned.

The question of just how much adverse effect these factors may have had on the structure here, is one that cannot be answered in an unqualified manner. In the writer's opinion, the deformation wrought upon these beds as described by Hodge, Buwalda, etc., and as discussed heretofore, is probably of sufficient proportions to preclude the existence of commercially important oil occurrences today, assum-

ing that such might have existed in the past. However, others express opinions to the contrary on these same considerations, and their opinions cannot be positively refuted with the evidence on hand.

By way of summary it can be said that although details of closure have not conclusively been demonstrated to exist, the Hay Creek Oil and Gas Company's holdings do cover an anticlinal structure which is possibly (or probably) underlain by marine Cretaceous beds. Whether or not these beds contain oil or gas is purely speculative factor. In addition, the question remains as to how much adverse effect the subsequent volcanic activity common in the area has had on any oil or gas filled structures that might exist, or have existed.

In concluding his report on the Oil and Gas Possibilities of Eastern Oregon Buwalda states (page 47) "As to the prospects of oil in commercial quantities, eastern Oregon can not be regarded as impossible territory, but it is rather improbable territory."

No significant data of any consequence has been established since this report was made to warrant a change in this conclusion, especially so in the area of these holdings. Due to the lack of an abundance of exposures of the critical formations for study elsewhere in central Oregon, exploratory drilling remains as perhaps the most ^{positive and} direct method of obtaining the lacking third dimensional data and of establishing the situation. In this connection, it can be stated that no exploratory hole, drilled in a truly workmanship-like manner under strict and competent technical supervision, has ever been sunk in the area.

Accepting (arbitrarily) the presence or absence of source and reservoir beds in the formations underlying these holdings as a warranted speculation, the question of whether or not it is justifiable to drill an exploratory hole here should depend upon the establishment by a professional geologist of adequate closure and the results of a careful, unbiased, study of the amount of secondary deformation superimposed upon the structure in terms of adverse effect to the structure of such deformation.

Assuming that adequate, or likely, closure is demonstrated to exist, and that detailed study of the secondary deformation of the structure and of the critical formations, reveals this deformation not to be excessively adverse in nature and extent, there would appear to be but little grounds upon which to refuse permission for the company to sell stock for the financing of one carefully located and expertly supervised test well, with additional development dependent on the discovery of new data of a pertinent and positive nature----PROVIDING THAT THOSE APPROACHED FOR THE FINANCING OF ANY VENTURE HERE SHOULD BE FULLY ADVISED OF THE SPECULATIVE NATURE OF THE UNDERTAKING. This latter is aptly summed up in the textbook entitled Petroleum in the United States and Possessions, by Arnold and Kemnitz, 1931, to wit: "Investment in the wildcat drilling in Oregon is speculation of the most hazardous type. The chances for developing significant or commercial production are remote."

Report by:

N. S. Wagner, Geologist

Informant:

Mr. J. E. Morris

Date of Exam:

March 11 & 12, 1947

Report Written:

April 14, 1947



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Report by:

N. S. Wagner, Geologist
April 14, 1947

Informant:

J. E. Morris

Date of Examination:

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Oil & Gas Structure
Hay Creek Anticline

| NAME | OLD NAMES | PRINCIPAL ORE | MINOR MINERALS |
|---|--|------------------------------|----------------|
| 11-12-13 T | 13-14-15-16 R | <u>PUBLISHED REFERENCES</u> | |
| Jefferson & Crook..... COUNTY | | | |
| AREA | | | |
| ELEVATION | | <u>MISCELLANEOUS RECORDS</u> | |
| ROAD OR HIGHWAY | | | |
| DISTANCE TO SHIPPING POINT | | | |
| PRESENT LEGAL OWNER (S) | Ranchers, etc., -- too numerous to mention | Address | |
| | | | |
| | | | |
| | | | |
| OPERATOR Hay Creek Gas & Oil Development Company..... | Mr. J. E. Morris, Pres., 403 Second & Cherry Bldg., Seattle 4, Washington | | |
| Name of claims | Area | Pat. | Unpat. |
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| <u>EQUIPMENT ON PROPERTY</u> | | | |
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HAY CREEK OIL AND GAS DEVELOPMENT COMPANY

Confidential report designed to supplement formal report entitled "Oil and Gas Structure -- Hay Creek Anticline" by N.S.W., April 14, 1947.

This company's activities first came to the attention of the writer with the receipt of a letter written by John N. Fegan, attorney for the United States Securities and Exchange Commission, October 25, 1946.

A copy of this letter, and of the affidavits enclosed therewith, and a copy of excerpts made by me from newspaper advertisements enclosed therewith, and a copy of my reply to Mr. Fegan (who didn't return the copy of Buwalda's report on Oil and Gas in eastern Oregon as requested) is attached to this report as supplemental information.

Attention is directed to my reply to Fegan as the general subject of the oil and gas situation in the Prineville-Madras area is summarized there in a more concise manner than in the report on the property.

On Feb. 3, 1947, Mr Morris telephoned the writer requesting a departmental examination of the company's holdings. Subsequent phone calls were made in connection with setting a date for the examination which was made on an official "request" basis, the Request for Inspection Form being signed by Morris.

The Request for Information Form gave the chief problem as "geology". Subsequent discussion with Morris brought out that this should have been qualified with words to the effect of "for the edification and enlightenment of the Oregon Corporation Commission" as Morris and his associates evince complete faith in the soundness of their geologic interpretations of the area and their chief problem consists of getting the Corporation Commission to share their views by granting them a permit to sell stock.

The Request for Inspection Form features affirmative answers to the possession of claim maps and engineer's reports. The writer did see a map which was partly base map alone and partly geologic and contour map by Albert Hale as mentioned in the green paper report. The writer was not shown any reports, but was given to understand that Wartes and Crandall had submitted "preliminary" reports, with the inference that more complete reports were to be forthcoming eventually from these gentlemen. Also, the writer was told that the company had a "general reconnaissance report" by Hale. Copies of all of the foregoing were promised to the writer, but as yet have not been received.

In discussing the uncertainties connected with the age of the Mesozoic beds, and the situation with respect to verified oil showings in the district, the writer was told that the company had access to, and permission to copy, the records pertaining to the log of the Clarno well. These records were reported to include technical analyses confirming the reported oil horizons, and also a study by the U.S.G.S. of forams obtained from the core. These data are reported to be in 307 Gerlinger Building, Portland, in the possession of a Mr. G.G. Kesling (residence Hood River). Morris and associates left Prineville for Portland with the avowed purpose of getting photostatic

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copies of this data to send to me, but such never has been received. However, Morris phoned the writer on April 1st, 1947, stating that Kesling was not in Portland when they called, and that due to his absence they were not able to obtain the data at that time. Morris also advised the writer, and this seemed to constitute more nearly the main reason for his phone call than did the explanation about the data, that he had had word from the Corporation Commission that they would be contacting our Department soon about my report. No mention was made about the companys own maps and reports and why they, at least, had not been sent as promised.

Morris says he has been in the Prineville district off and on for ten years or so and he appeared to have a wide range of acquaintances there. He told me that his brother, A.R. Morris of 7337 8th Ave, Seattle operated a quicksilver mine known as the Amity Mine, situated near the Blue Ridge Mine on Johnson Creek. When "sheriff" Dixon of the WPB did not pass favorably on the property during the war, and when operating payroll was low, both this Hay Creek Morris and his brother reportedly worked as miners in the mine for a year driving a blind crosscut which reportedly opened up a good ore shoot. Morris's brother reportedly operated and produced from this mine during 1946 and plans to resume production again this year.

Many of the local Oregon natives are reportedly keenly interested in Morris's Hay Creek Oil endeavors. I personally met Judge Powers of Madras, who was enthusiastic and given to reminiscing about the days when Hodge and his assistants were mapping in the district. According to Powers Hodge seemingly made many off-the-record statements about the structure and the Cretaceous in terms of oil. Hodge even camped on Powers land, which incidentally has not been leased to the Hay Creek Company, although a lease is promised when the company shows signs of going ahead with some tangible development. Morris spoke of acquaintanceship with Jean Bowman and stated that she thought well of the property. Since Morris had previously asked me to recommend a geologist whom the company might retain, I took the occasion to ask why he hadn't retained Bowman since she was not only a geologist, but was intimately acquainted with the district as well. Morris stated that he had ask her, but that she refused on account of pregnancy at the time. A Mrs Grace Lovell of Prineville is actively engaged in assisting Morris and is scheduled to be the companys attorney in fact or resident steno in the Prineville office is such ever becomes a reality. Mrs Lovell has worked on the Draft Board and from what I gather she rates highly in the community. Her husband is chief mechanic at the Prineville airport. Both seem like fine people, but wholly uninformed geologically. Admittedly so, however.

Morris was accompanied during the whole of my examination by a Mr. E.V. Vachon, 114 17th Ave., Seattle, and a Mr. Young, also of Seattle. Neither Vachon nor Young were supposed to be connected with the company, but both were much acquainted with all aspects of the proceedings, both past and present, and participated actively in all phases of the examination.

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Vachon is a very intelligent, highly travelled man. He doesn't know much geology, but he seems to be well acquainted with high-rating mining people all over the country, and with the business end of mining game in general. He attended the University of Washington and was a classmate of Buwalda's. His ex GI son is currently finishing his studies in geology at Washington and is planning to enter Stanford next year for post graduate work in geology. Vachon specifically told me that he was not connected with Morris, but that he represented a large block of money which the owners would rather invest on some speculation than shell out as income tax. He went so far as to say that he was considering taking on a lion's share of the Hay Creek stock, or possibly of financing Morris outright.

Young I didnt get much acquainted with as he was a very quiet, untalkative person. I was told that he was a high-rating power in the Mormon Church.

Morris and Vachon did talk about having approached a Mr. Cary about affiliation with the Hay Creek Company as geologist-engineer. Mr. Cary reportedly "works for the Govt. Engineers" "is indirectly connected with the University of Washington", in an unrelated capacity "is an associate of Dr. Weaver of the University of Washington." As I understand it, Cary had already made a hurried and superficial examination of the holdings prior to my examination. Anyway, during his phone call to me of April 1st, Morris stated that Cary had gone over the property again since my exam (including flying over it for two hours) and that he was much and favorably impressed. Neither Cary nor the others supposedly retained by the company are listed in the AIME.

I dont know this but suspect it, that the company has been trying to obtain engineering service on an interest basis rather than by paying much hard cash. Hence their continued efforts in shopping for a man.

On my examination, I left Baker Monday, March 10 arriving at Prineville in the late afternoon due to storms on the mountains. The evening was spent in general discussion and in looking over their map, etc Tuesday and Wednesday were spent in the field. Poor road conditions necessitated a lengthy, round about approach to the holdings via Redmond and Madras so that little effective time was spent in the field on the holdings. I confined my examination to the noting of enough dips to confirm the general presence of an anticlinal structure and the relationships of the company's holdings (as reported to me) thereto. Otherwise I made an especial effort to visit the heart of the Mesozoic outcrop as mapped by Hodge, and for this we walked several miles. While on this Mesozoic outcrop, and my traverse crossed but a very limited portion of the whole exposure, I noted and pointed out several cases of seemingly extreme deformation occurring, roughly on the anticlinal high. Quite a bit of time was spent in search of forams. In this connection I was assisted by all members of the party who were eager to find any evidence that might further substantiate the Cretaceous age of these beds. Small dead, and dried plant growth on the surface of much of the rock served admirably to give the men a sort of a notion what they were looking for.

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Forams were found although the search was made on numerous exposures. One small rock fragment containing possible forams or shell fragments was found, but this rock vanished after it was repeatedly passed around for examination. Each person thought the other had it, and a prolonged search of the vicinity where each had been sitting at the time failed to reveal it. I have no grounds to prove anything, but rather suspect that Vachon stuck it in his pocket for his son to examine. Incidentally, Vachon did have a petrographic analysis made by his son on a sample of rock obtained from the holdings. The analysis was of no particular significance beyond that it was a routine rock analysis and I made no copy accordingly although offered one if I wanted it.

At the conclusion of my examination I ask Morris just what in hell he had requested my examination for? He replied that when he made application to the Oregon Corporation Commission, Mr. Hudson had asked what I (the state geologist) thought of the situation, and that he, Hudson, had deferred granting the permission pending my report.

I advised Morris several times that I was not the state geologist in the sense that he repeatedly used the words, and asked him why he had not contacted Mr. Libbey, the director, at the Portland office? He seemed utterly confused at the very idea and replied to the effect that the department letterhead said I was geologist in eastern Oregon, and by way of defense added that the Securities and Exchange Commission had also named me in mentioning to him that it might be a good idea for him to contact the state geologist. The letter head could be interpreted that way and I did have correspondence with the Securities and Exchange Commission by which the letter could have referred me to Morris, so Morris seems to be in the clear on that. However I was suspicious of his motives on general principles, and continued by stating that Hudson had written no letter to me requesting information, nor to the Portland office to the best of my knowledge. Morris didnt have any answer for this, but did seem surprised. All told, I couldn't tell whether Morris cooked the idea up himself and was working us in on Hudson, or if Hudson did make such a request. At best it did seem odd that if Hudson had requested such information, that he hadnt written us directly during the quite appreciable period of time which elapsed between the date of Morris's application to him and the date of my examination.

With this suspicion in mind, I then told Morris and associates that I didnt share their enthusiasm about the property --- that I didnt think the chances of finding oil were worth a damn, and why --- that I wouldn't personally invest a plugged nickel in their, or anybody elses prospect venture in the region.

I further told Morris that when I returned to Baker I would write a routine report covering my exam and including chiefly data concerning the company and their activities, but that I would not write any report or statement designed to cover the situation to the Corporation Commission short of having a request for same direct from them. I further stated that if I did recieve word requesting a report from the Commission, I would send my report direct to my departmental head anyway, and more important, I emphasized that if I did have to write a report expounding on the geologic aspects of the situation, I would

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702 Woodlark Building
Portland, Oregon

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state that I didn't regard the geology as being favorable, and why, just as I had told them.

I had thought that this would scare Morris if he was working the angles and trying to frame us into supporting his cause somehow, but instead of being disappointed, he was pleased no end. He didn't like my ~~negative~~ overall unfavorable interpretations, and naturally enough always grasp at any shred of uncertainty which could be construed to their favor, but as long as I wouldn't come out flatfooted and unconditionally condemn the area, he was more than pleased, because "all they wanted was a chance to drill and test their beliefs." He repeated what he had said many times before that he would be happy to have the Corporation Commission order all money raised kept in escrow, and for them to regulate the expenditures thereof, etc etc etc. Again, "all they wanted was the chance to go ahead and explore the ground".

Though ill-advised, I do believe that Morris is sincere and not a wantonly unscrupulous promotor. Incidentally, he just phoned me from Seattle again a few minutes ago (April 17) to tell me that he had obtained the log of the Clarno well and would send me a print tomorrow --- that he had not been able to get the test data on the oil showings, but that he hoped to obtain it next week, and would send on the copies thereof as soon as he did get it ---- that he expected to be in Portland next week and that he would call in at our main office to introduce himself to Mr. Libbey. When I receive this map, a statement to the effect should be attached to the formal report to correct any inference of poor faith that might otherwise be concluded from my repeated mention of the lack of receipt of promised data.

Since the region cannot be branded as being unconditionally impossible with the evidence at hand; since the area has not been exhaustively and adequately tested heretofore; since many of the speculative factors cannot be finally established short of drilling, I see no particular grounds on which to justly prohibit the sale of stock for the purpose of financing a comprehensive test of the ground PROVIDING THAT A FULL AND COMPLETE PICTURE OF THE SPECULATIVE NATURE OF THE VENTURE BE AT ALL TIMES FAIRLY SET FORTH IN THE COMPANIES ADVERTISEMENTS.

In saying this I DO NOT recommend the property as worthy of such speculative investment in any respect, but I do think that if an acceptably competent geologist should pass on the structure as being reasonably free of excessive secondary deformation (dikes, veins, and faults) that speculation on the presence or absence of oil bearing sands could be considered as halfway warranted. BUT I WOULD SUGGEST THAT THE CORPORATION COMMISSION REQUIRE THE COMPANY TO ENGAGE THE SERVICES OF AN ACCEPTABLY COMPETENT GEOLOGIST FOR THE PURPOSE OF MAKING A DETAILED STUDY OF THE STRUCTURE BEFORE AUTHORIZING ANY PERMIT TO SELL STOCK FOR THE PURPOSE OF RAISING FUNDS TO DRILL. In other words, should the Corporation Commission conclude to permit the company to sell stock, any initial sale of stock should be limited to the raising of

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funds for the purpose of conducting an extensive geologic study of the structure only, and advertised accordingly ----- that permission for any subsequent sale of stock for drilling purposes be based upon the establishment, by this geologic study, of a closed (or indicated closed) structure free of an apparent excess of adverse secondary deformation.

Report by N.S. Wagner

Date, April 17, 1947

Informants, Morris, Vachon, Young, Lovell, Judge Powers, Security and Exchange Commission data .



CONFIDENTIAL

November 2, 1946

Newspaper Advertisements give the names of the officers of this Hay Creek Gas & Oil Development Company, 403 2nd & Cherry Bldg, Seattle, Washington, a Washington incorporation, as:

E. E. Darnell, Spokane, President
Robert G. Comstock, Seattle, Secy-treas
James E. Morris, Seattle, Vice President
and General Mgr.

The advertisement further mentions that two eminent geologists examined the property "closely and thoroughly during the week of August 20, 1945" and quotes them as follows:

"All the necessary conditions for the generation and entrapment of oil and gas are present in the Hay Creek anticline. This points to the wisdom of adequate exploration "John S. Crandall engineer and geologist, Spokane.

"The structure is so promising that I would be remiss in my duty as an engineer if I did not recommend drilling in the ground you have under lease near Madras, Oregon" L. Lore Wartes, Consulting Engineer, Spokane.

HAY CREEK GAS & OIL DEVELOPMENT COMPANY
403 Second and Cherry Bldg.
Seattle, 4, Washington

October 15, 1946

TO OUR SHAREHOLDERS:

In line with our announced policy of keeping our shareholders fully informed of company affairs, we find pleasure in advising you that upon hearing recently that oil had been encountered in a water-well being drilled on a farm which this company has under lease on the Hay Creek Anticline, we investigated this report and obtained affidavits from the owners of the farm and from the man who drilled the well for them.

The affidavits of Mr. and Mrs. R. A. Griffin, owners of the farm, state that at a depth of about 300 feet the drill went into sand and upon being brought to the surface was found covered with a heavy bluish black viscous substance which, by taste and smell and the fact that it burned, was identified by them as petroleum.

The driller, Clyde Poulton, in his affidavit states that he encountered the first indication of oil at 315 feet, and 325 feet found an axle-grease-like substance 6 to 8 feet thick, which he determined was a petroleum oil. Quoting from his affidavit; "In my opinion there is between 15 and 25 feet of oil bearing formation in this well, the lowest part of which was very heavily saturated."

As the presence of so much oil rendered the well unfit for use as a water-well, drilling was abandoned at a depth of 340 feet, according to Poulton's affidavit.

The affidavits were given under oath, were duly notarized, and were witnessed by T. A. Power, the County Judge of the County of Jefferson, Oregon.

Unfortunately when drilling was given up the well was filled in. We are now considering the feasibility of reopening the hole for the purpose of obtaining an exactly accurate log, and perhaps drilling deeper for more thorough exploration. This could be done at relatively small expense.

It is our considered opinion, however, that the Griffin well is on the edge of the anticline and that the site which we have chosen, somewhat higher on the structure, is more advantageous for drilling for oil and gas in commercial quantities.

This letter is for your information merely. We intend to make the affidavits public a little later. In letting you know of these findings in advance of a public statement we are carrying out the company's pledge to shareholders. We hope you will be as pleased as we are over these developments. Of course the discovery of oil in the Griffin well does not give any positive assurance that we will strike oil in commercial quantities on the site where we propose to drill; however, we consider the new find a most substantial and highly encouraging showing.

Yours sincerely,

James E. Morris, President

STATE OF OREGON:)
) SS.
COUNTY OF JEFFERSON)

I, Mrs. Lillian Griffin, being first duly sworn on oath, state as follows:

That about the middle of November, 1945, a water well was being drilled by Bill Mather of Bend, Oregon, under contract, on our farm in Section 27, Township 13 S, and Range 13 E, in Jefferson County, Oregon, the farm being approximately one and one-half miles northeast of the Crooked River Bridge;

That at a depth of 82 feet water was found, but in quantities insufficient for domestic use and it was decided to drill deeper in search of a greater quantity of water;

That at a depth of 200 or 250 feet the drill encountered a much harder formation, which continued to depth of about 300 feet, where it plunged into a much softer substance;

That the drill was raised to the surface and was found to be streaked with a heavy coating of a dark bluish liquid which I personally tasted, smelled, and burned, and which to my knowledge was petroleum;

That the drilling was continued to a depth of 350 feet and the drill was repeatedly raised and the showing of oil continued;

That at this depth (350 feet) when the baler was raised the water was coated with oil; that the presence of this oil in such quantities rendered the water wholly unfit for domestic use and further drilling was abandoned.

Mrs. Lillian Griffin

Sworn and subscribed before me this 14th day of September, 1946 at Terrebonne, Oregon.

Grace G. Lovell
Notary Public in and for the State of Oregon; residing at Prineville, Oregon
My Commission expires May 1, 1950

STATE OF OREGON)
) SS.
COUNTY OF JEFFERSON)

I, R. A. Griffin, being first duly sworn on oath, state as follows:

That in September, 1945, I engaged Bill Mather, of Bend, Oregon, to drill a water well for domestic use on my farm in Section 27, Township 13 South, Range 13 East, in Jefferson County, Oregon;

That drilling continued intermittently until the middle of November;

That at a depth of about 80 feet water was discovered, but not in sufficient quantity for our use, and drilling was continued in the hope of finding a larger body of water;

That between 200 and 250 feet the driller found a hard, very dark brownish shale which was approximately 100 feet thick; that at a depth of about 300 feet the drill went through the shale into a soft sand;

That I was standing at the wellhead when the drill was brought to the surface after penetrating this sand, and noticed that the bit was covered with a heavy bluish black viscous substance which proved to be petroleum;

That my wife and others smelled and tasted this substance and that we skimmed the drillings and placed this skimming in a can, and the driller and I applied matches to the contents of the can and burned it, proving conclusively to us that the substance was oil;

That drilling was continued into the sand, the hole being baled frequently, and oil continued to be brought up to a depth of 350 feet, where drilling was discontinued due to the fact that the presence of such a quantity of petroleum made the water wholly unfit for use for domestic purposes or for watering stock.

R. A. Griffin

Sworn and subscribed before me this 14th day of September, 1946, at Terrebonne, Oregon.

Grace G. Lovell
Notary Public in and for the State of
Oregon; residing at Prineville, Oregon.
My commission expires May 1, 1950

STATE OF OREGON)
) SS.
COUNTY OF JEFFERSON)

I, Clyde Poulton, being first duly sworn on oath state as follows:

That in November, 1945, I was employed by Bill Mather as a well driller, and about the middle of that month was drilling a water well on the farm of R. A. and Lillian Griffin in Jefferson County, Oregon;

That water was struck at a depth of about 87 feet. The amount was not sufficient for the uses of the Griffins and I continued drilling;

That at a depth of about 225 feet, after going through shale from the 87-foot level, I encountered an extremely hard rock formation, which continued for about 8 feet; then we went through a dark bluish shale to a depth of about 315 feet, where we encountered the first indication of oil;

That at 325 feet a substance very closely resembling axle grease was encountered which was between 6 and 8 feet thick;

That when the well was baled at this depth on top of the water was a thick oily scum; that the baler also brought up quantities of this substance resembling axle grease which I determined was a petroleum oil;

That I continued drilling and encountered sand beneath this axle grease-like deposit, which continued to a depth of 340 feet, at which point the drilling was abandoned due to the fact that the water was so mixed with oil that it was unfit for use either for drinking or for watering stock or for any other domestic purpose;

That in my opinion there is between 15 and 25 feet of oil bearing formation in this well, the lower part of which was very heavily saturated;

That I was born and raised in the oil fields of Oklahoma, where I worked in the oil industry for a number of years;

That due to my experience in the oil industry it is my opinion that this is an outstanding oil showing, and I would highly recommend further drilling.

T. A. Power

Witness

Clyde Poulton

Sworn and subscribed before me this 16th day of September, 1946, at Terrebonne, Oregon.

Grace G. Lovell

Notary Public in and for the State of Oregon; residing at Prineville, Oregon
My commission expires May 1, 1950.